In the Claims

Applicant has submitted a new complete claim set showing marked up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing.

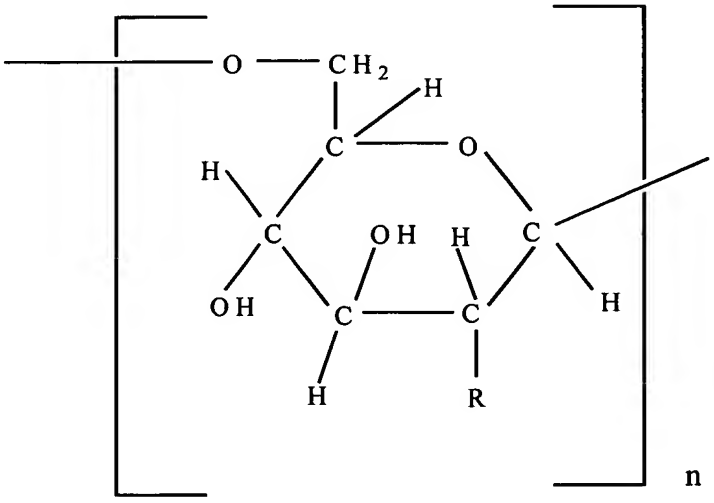
1. (Original) A composition comprising

an isolated polysaccharide comprising a β-1,6-glucosamine polymer, having a length of at least four monomeric units, wherein less than 50% of glucosamine amino groups are substituted with acetate, and wherein the composition is sterile.

2. (Original) A composition comprising

an isolated polysaccharide comprising a β-1,6-glucosamine polymer, having a length of at least two monomeric units, and conjugated to a carrier compound, wherein less than 50% of glucosamine amino groups of the polysaccharide are substituted with acetate.

3. (Currently Amended) The composition of claim 1 [[or 2]], wherein the isolated polysaccharide has a structure of



wherein n is an integer that is at least four, wherein R is selected from the group consisting of -NH-CO-CH_3 and -NH_2, provided that less than 50% of the R groups are -NH-CO-CH_3, and having a molecular weight of at least 800 Daltons.

4. (Original) The composition of claim 3, wherein less than 45%, less than 40%, less than 35%, less than 30%, less than 25%, less than 20%, less than 15%, less than 10%, or less than 5% of R groups are $-NH-CO-CH_3$.

5. (Original) The composition of claim 3, wherein none of the R groups is $-NH-CO-CH_3$.

6. (Original) The composition of claim 3, wherein n is an integer selected from the group consisting of at least 6, at least 10, at least 20, at least 50, at least 100, at least 200, at least 300, at least 400 and at least 500.

7. (Currently Amended) The composition of claim 1[[or 2]], wherein the isolated polysaccharide is a hetero-substituted polymer.

8. (Currently Amended) The composition of claim 1[[or 2]], wherein the isolated polysaccharide has a molecular weight of at least 800 Daltons.

9. (Currently Amended) The composition of claim 1[[or 2]], wherein the isolated polysaccharide has a molecular weight selected from the group consisting of at least 1000 Daltons, at least 1200 Daltons, at least 1500 Daltons, at least 2000 Daltons, at least 2500 Daltons, at least 5000 Daltons, at least 7500 Daltons, at least 10,000 Daltons, at least 25,000 Daltons, at least 50,000 Daltons, at least 75,000 Daltons, and at least 100,000 Daltons.

10. (Currently Amended) The composition of claim 1[[or 2]], wherein the isolated polysaccharide has a molecular weight selected from the group consisting of at least 125,000 Daltons, at least 150,000 Daltons, at least 200,000 Daltons, at least 250,000 Daltons, at least 300,000 Daltons, at least 350,000 Daltons, at least 400,000 Daltons, at least 450,000 Daltons, and at least 500,000 Daltons.

11. (Currently Amended) The composition of claim 1[[or 2]], wherein the length of the β-1,6-glucosamine polymer is selected from the group consisting of at least 6, at least 10, at least 20, at least 50, at least 100, at least 200, at least 300, at least 400 at least 500 monomer units.

12. (Currently Amended) The composition of claim 1[[or 2]], wherein less than 40%, less than 35%, less than 30%, less than 25%, less than 20%, less than 15%, less than 10% or less than 5% of glucosamine amino groups are substituted with acetate.

13. (Currently Amended) The composition of claim 1[[or 2]], wherein none of the glucosamine amino groups is substituted with acetate.

14. (Currently Amended) The composition of claim 1[[or 2]], wherein the composition has a purity selected from the group consisting of at least 90% pure, at least 95% pure, at least 97% pure, and at least 99% pure.

15. (Original) The composition of claim 1, wherein the isolated polysaccharide is conjugated to a carrier.

16. (Currently Amended) The composition of claim 1[[or 15]], wherein the isolated polysaccharide is conjugated to the carrier compound through a linker.

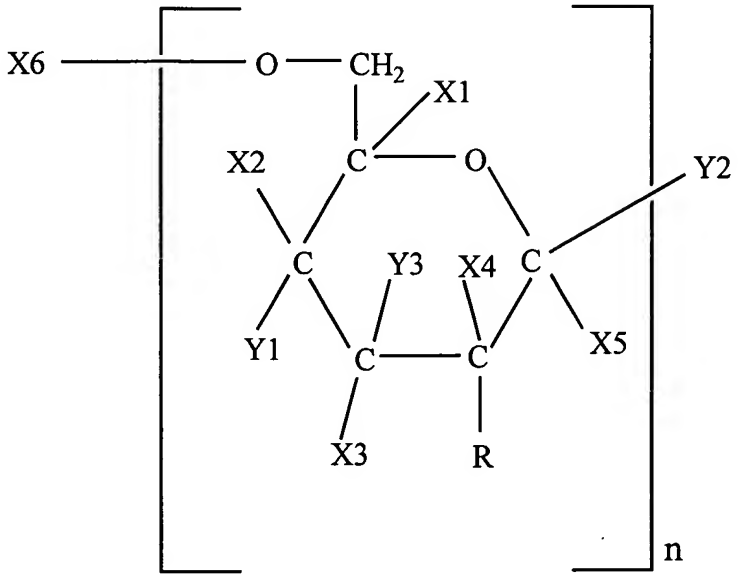
17. (Currently Amended) The composition of claim 1[[or 15]], wherein the carrier compound is a peptide carrier.

18. (Currently Amended) The composition of claim 1[[or 2]], further comprising a pharmaceutically acceptable carrier.

19. (Original) The composition of claim 2, wherein the composition is sterile.

20. (Currently Amended) The composition of claim 1[[or 2]], wherein the isolated polysaccharide is formulated as a vaccine.

21. (Currently Amended) The composition of claim 1[[or 2]], wherein the isolated polysaccharide consists of the following structure:



wherein each of X1, X2, X3, X4, X5 and X6 is either H, a carrier compound, or a linker joined to a carrier compound; and each of Y1, Y2 and Y3 is either OH, a carrier compound or a linker joined to a carrier compound.

22. (Original) The composition of claim 21, wherein only one carrier compound or linker joined to a carrier compound is conjugated to the structure.

23. (Original) The composition of claim 22, wherein only one of X1, X2, X3, X4, X5 or X6 is conjugated to a carrier compound or linker joined to a carrier compound.

24. (Original) The composition of claim 21, wherein only one of Y1, Y2 or Y3 is conjugated to a carrier compound linker conjugate to a carrier compound.

25. (Original) The composition of claim 22, wherein the carrier compound is a polysaccharide that is not an N-acetyl β 1-6 glucosamine.

26. (Currently Amended) A method of making the isolated bacterial polysaccharide of claim 1,[[2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13]] comprising

ethanol precipitating a crude polysaccharide preparation from a concentrated bacterial cell body preparation;

concurrently digesting the crude polysaccharide with lysozyme and lysostaphin followed by sequential digestion with a nuclease and proteinase K to form a digested polysaccharide preparation;

size fractionating the digested polysaccharide preparation;

isolating an acetylated polysaccharide fraction; and

de-acetylating the acetylated polysaccharide fraction to produce a polysaccharide having less than 50% acetate substitutions.

27. (Currently Amended) A method of making the isolated bacterial polysaccharide of claim 1,[[2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13]] comprising

preparing an impure polysaccharide from a bacterial culture;

incubating the impure polysaccharide with an acid or a base to produce a semi-pure polysaccharide preparation;

neutralizing the preparation;

incubating the neutralized preparation in hydrofluoric acid;

isolating an acetylated polysaccharide from the preparation; and

de-acetylating the acetylated polysaccharide to produce a polysaccharide having less than 50% acetate substitutions.

28. (Currently Amended) A method of making the isolated bacterial polysaccharide of claim 1,[[2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13]] comprising

preparing an impure polysaccharide from a bacterial culture;

incubating the impure polysaccharide with an acid or a base to produce a semi-pure polysaccharide preparation;

neutralizing the preparation;

incubating the neutralized preparation in hydrofluoric acid; and

isolating from the preparation a polysaccharide having less than 50% acetate substitutions.

29. - 41. (Cancelled)

42. (Currently Amended) A pharmaceutical composition comprising

the isolated polysaccharide of claim 1,[[2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 21, 22, 23, 24 or 25,]] in an effective amount to stimulate an immune response, in a pharmaceutically acceptable carrier.

43. – 44. (Cancelled)

45. (Currently Amended) A method for treating or preventing a *Staphylococcus* infection in a non-rodent subject comprising

administering to a non-rodent subject having or at risk of developing a *Staphylococcus* infection an effective amount for inducing an immune response against *Staphylococcus* of an isolated polysaccharide of [[any one of]] claim 1[[, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 21, 22, 23, 24 or 25]].

46. – 59. (Cancelled)

60. (Currently Amended) A method for generating antibodies comprising:

administering to a subject an effective amount for producing antibodies specific for *Staphylococcus* of an isolated polysaccharide of claim 1,[[2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 21, 22, 23, 24 or 25,]] and an adjuvant, and

isolating antibodies from the subject.

61. (Currently Amended) A method for generating monoclonal antibodies comprising:

administering to a subject an effective amount for producing antibodies specific for *Staphylococcus* of an isolated polysaccharide of claim 1,[[2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 21, 22, 23, 24 or 25,]] and an adjuvant,

harvesting spleen cells from the subject,

fusing spleen cells from the subject to myeloma cells, and

harvesting antibody produced from a fusion subclone.

62. (Currently Amended) A method of producing a polyclonal antibody to a bacterial polysaccharide comprising

stimulating an immune response to the bacterial polysaccharide by administering an isolated polysaccharide of claim 1,[[2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 21, 22, 23, 24 or 25]] to a subject and an adjuvant, and

harvesting antibody from the subject.

63. - 65. (Cancelled)

66. (Currently Amended) A method of identifying a monoclonal antibody specific for a polysaccharide in a non-human subject, comprising:

inducing an immune response to the polysaccharide,

isolating antibody producing cells from the subject,

producing immortalized cells from the antibody producing cells, and

testing the ability of the immortalized cells to produce the monoclonal antibody using an isolated polysaccharide of claim 1[[, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 21, 22, 23, 24 or 25]].

67. (Cancelled)

68. (Currently Amended) A composition comprising

an isolated binding agent that binds to the isolated polysaccharide of claim 1[[, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 21, 22, 23, 24 or 25]].

69. - 77. (Cancelled)

78. (Original) A method of identifying the presence in a sample of a bacterial polysaccharide having less than 50% acetate substituents comprising

contacting the sample with the isolated binding agent of claim 68, and

detecting binding of the isolated binding agent to the sample,

wherein binding of the isolated binding agent indicates the bacterial polysaccharide is present in the sample.

79. - 81. (Cancelled)

82. (Original) A method for treating a subject having or at risk of developing a *Staphylococcus* infection comprising

administering the isolated binding agent of claim 68 to a subject in need thereof in an amount effective to inhibit the *Staphylococcus* infection.

83. - 85. (Cancelled)